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INTRODUCTION

In accordance with the City Auditor's 1991-92 Audit Workplan, we reviewed the Information Systems Department's computer purchasing process. We conducted this audit in accordance with generally accepted government auditing standards and limited our work to those areas specified in the Scope and Methodology section of this report.

SCOPE AND METHODOLOGY

We reviewed the computer purchasing process the Information Systems Department (ISD) administers. Our audit focused on the City's purchase, delivery, and installation of microcomputers (desktop, laptop, and notebook computers) and computer software and peripherals. Because the Redevelopment Agency performs its own computer purchasing, our review did not cover Redevelopment Agency transactions.

Our audit included a review of ISD's procedures for the review of microcomputer purchase requisitions. We compared the City's policies and procedures in acquiring personal computers (PC) and software with those of the County of Santa Clara, City of Santa Clara, City and County of San Francisco, and State of California. We researched the pricing trend of PCs by reading various computer books and magazines and newspaper articles. We also contacted various local and out-of-state vendors of PCs.

As part of our audit, we surveyed City departments to determine how well ISD handled their computer-related purchases as well as how long it took the purchases to be completed.

During the course of our audit, we noted several areas that are beyond the scope of this audit but are pertinent to the broader issue of the City's administration of its information systems. These areas are:

1. The Financial Management System's (FMS) on-line requisition. We noted timeliness problems relating to the recording of requisitions into the system and the lengthy response times departments experience when tracking their requisitions and purchase orders. This is especially prevalent during heavy system usage periods related to accounting period closings.
2. The acquisition and maintenance of minicomputer systems. Wang Laboratories, which is one of the main vendors for the City's minicomputers, has publicly announced that it is curtailing its computer manufacturing operations. This recent development has serious implications for the City since the City's FMS, Payroll, word processing network, and other systems use Wang minicomputers.

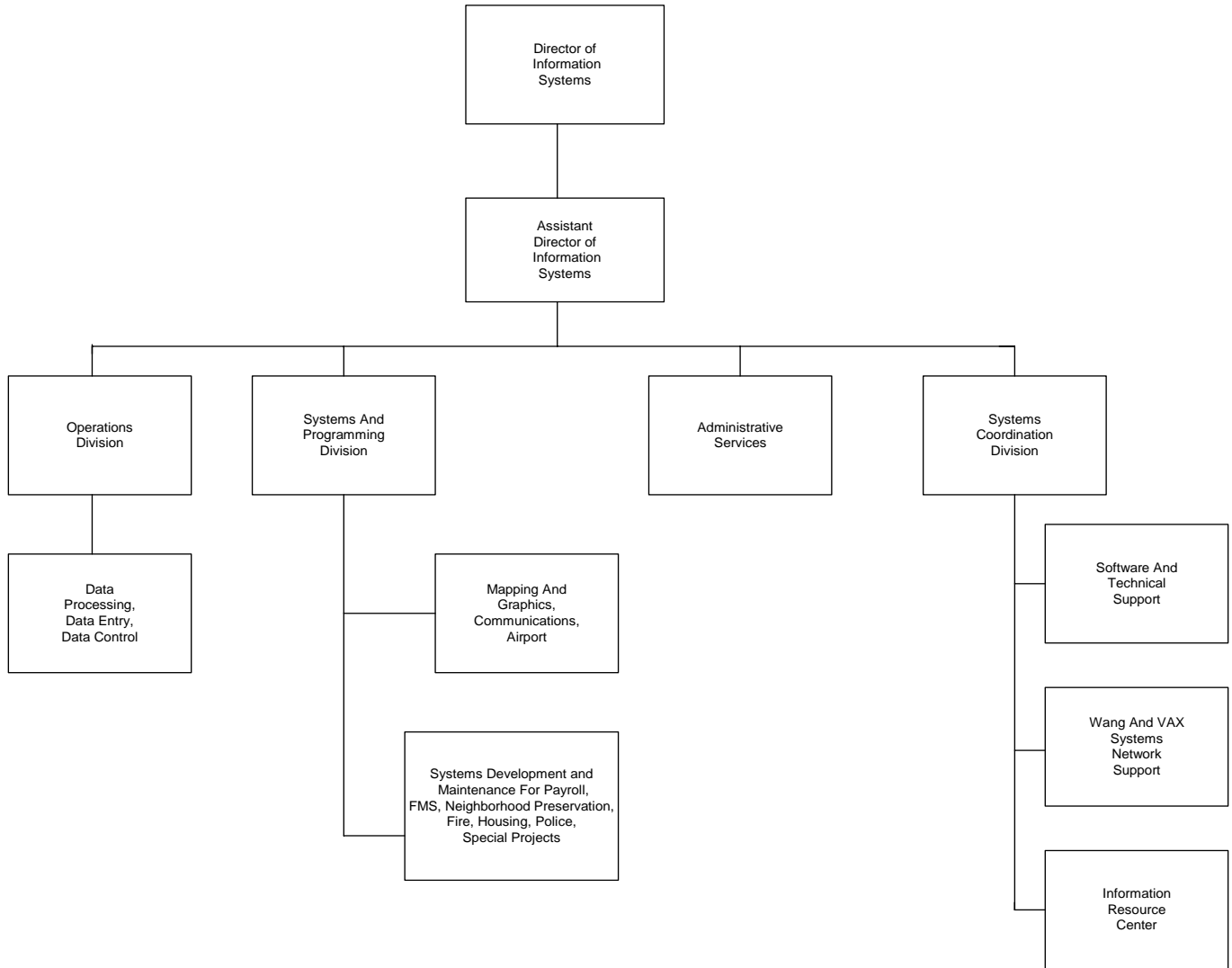
BACKGROUND

The Information Services Department's (ISD) mission is to provide accurate and timely computer data and services to City staff to assist them in managing resources for the efficient and effective delivery of City services.¹ Accordingly, ISD's Information Resource Center (IRC) provides information, guidance, and control over the City's purchases of computer equipment and software. This audit focuses on IRC's administration of the purchase, delivery, and installation of microcomputers (desktop, laptop, and notebook computers) and computer software and peripherals. It does not deal with the other IRC functions, such as troubleshooting and network support.

Chart I shows the organizational relationship of IRC to the rest of ISD. As shown in the chart, IRC is part of ISD's Systems Coordination Division, which is responsible for providing software and technical support for the City's computer systems.

¹ 1991-92 Proposed Operating Budget P-181.

CHART I
INFORMATION SYSTEMS DEPARTMENT
CHART OF ORGANIZATION



Program Accomplishments

In Appendix B, ISD informs us of its major accomplishments in the administration of the City's purchases, deliveries, and installations of computers and related items. According to the Director of Information Systems:

1. In spite of limited resources, ISD has been able to maintain the staffing of IRC to respond (through the IRC information hot line) to questions of City departments relating to the use of computers and to resolve problems relating to the installation and repair of computers, software, and peripherals. ISD used a variety of creative methods to provide IRC staff for both the information hot line and installation functions. These include reassigning existing staff from other department functions, hiring interns (using salary savings), and contracting with an independent installer (using non-personal savings).
2. ISD has established a secure information systems storeroom for the exclusive storage of new equipment and software awaiting installation. The storeroom allows IRC to receive equipment from Purchasing and maintain its own inventory control until the equipment is installed in the client department. The storeroom also provides workbench space for equipment testing and burn-in.
3. ISD has implemented the new City-wide procedures for purchasing computers and software. ISD's IRC is now responsible for entering and approving computer purchase requisitions and installing the equipment and software when received. The revised July 1990 procedures included changes allowing departments to view in Financial Management System (FMS) the requisitions for hardware and software approved for them by IRC.

4. ISD has participated in a study of the City's computer hardware and software purchasing process. The purpose of the study was to propose ways to improve the ordering process for hardware, software, and peripherals by reducing the length of time from order to set-up and delivery. Representatives of ISD, General Services Department, and the City Manager's Office met to define the current process, identify problems and delays, and work out innovative changes and solutions. The culmination of this effort was a Productivity Unit Report that the Administration has yet to release.

FINDING I

THE CITY CAN SAVE MONEY AND PROCESS REQUESTS FOR COMPUTERS AND COMPUTER SOFTWARE FASTER

Since November 1989, the City Administration has required that the Information Resource Center (IRC) within the Information Systems Department (ISD) review all City department or office requests for computers or computer software. Our review of IRC's processing of these requests revealed that:

- It takes an average of 122 days from the time City departments or offices request computers or computer software to the time of delivery;
- IRC does not adequately check computer requisitions from City departments and offices;
- City departments and offices are not satisfied with the IRC ordering and installation services;
- IRC has not analyzed vendor performance and reliability as a basis for deciding whether the City should continue to purchase computers from certain vendors; and
- Computer users in City departments and offices have not received sufficient training in the use of computers.

IRC can improve the economy and efficiency of the City's computer and computer software purchasing by (1) conducting a City-wide computer requirements analysis; (2) working with the City's Computer Systems Users Committee, Computer Systems Policy Committee, departments, and offices to standardize and bid City-wide computer purchases; (3) performing more stringent checks of computer requirements pertaining to each computer requisition and recommending the most cost-effective system to meet those requirements; (4)

documenting vendor performance and reliability;
(5) providing training to other City departments and offices in the use of computers; and (6) using the State of California's cooperative purchasing contract. By so doing, we estimate that City departments and offices can acquire computers and software about 90 days faster and the City could save as much as \$468,000 per year in computer equipment and software costs.

**The City's Computer Purchasing Process Requires
The City Departments And Offices To Submit
Computer-Related Purchases To The
IRC For Review And Approval**

In November 1989, the City Administration issued a policy requiring the ISD *"to order all non-consumable computer equipment, software, systems and peripherals for all City users."* Based on that policy, ISD and the General Services Department issued administrative procedures in July 1990 to provide information, guidance, and control covering the purchases of computer-related systems, hardware, and software. The purpose of these procedures was to assure standardization and departmental tracking of the City's computer purchases. The IRC within the ISD is responsible for reviewing all City department or office requests for computers or computer software.

Appendix C shows a flowchart of the City's computer purchasing process. In general, the requesting department or office determines the need for computer equipment or software and obtains Budget Office funding approval. The City department or office then completes Form No. 4808I (Request to Order Computer Hardware/Software) and submits it to IRC. IRC reviews the request for completeness, connections required, and funding. If IRC approves the request,

IRC enters a requisition into the Financial Management System (FMS). The Department of General Services/Purchasing Division (Purchasing) then selects the vendor, prepares the purchase order, and purchases the computer equipment or software.

When the vendor delivers the merchandise, IRC verifies the delivery of all the ordered components. If IRC is satisfied, Purchasing accepts delivery of the merchandise. Purchasing then forwards the computer equipment or software to the ISD storeroom. At the storeroom, IRC assembles the computer hardware, loads the software, and verifies that all the components operate properly. When IRC is satisfied that the equipment or software operates properly, it installs the equipment or software for the requesting department. Finally, IRC forwards a copy of the delivery form to the Finance Department/Fixed Assets Section, which records the equipment or software in the City's inventory control records and provides EDP insurance policy coverage.

Our review focuses on the City's purchases of microcomputer equipment and software. Microcomputers include desktop, laptop, and notebook computers and exclude the City's minicomputers (the Wang VS Systems and the VAX clusters) and the Intergraph VAX workstations.²

² The City uses minicomputers for such applications as the Financial Management System, payroll, electronic mail, zoning maps, and computer-aided dispatch.

It Takes An Average Of 122 Days From The Time City Departments Or Offices Request Computers Or Computer Software To The Time Of Delivery

Because of the various review and approval steps in the City's computer purchasing process and vendor delivery delays, it takes a long time for City departments or offices to acquire computers or computer software. Based on our sample of 45 purchase requisitions from 1989 to 1991, it took an average of 122 days from the time City departments or offices requested computers or computer software to the time of delivery. This time also includes time expended by the IRC in consulting with users to correctly configure equipment. Appendix D summarizes the purchases that we reviewed during our audit.

IRC has not set any timeliness targets or other standards for the computer purchasing process. The computer purchasing process takes an average of 122 days because Purchasing, as well as IRC, has to review and approve each purchase. Furthermore, between 1989-90 and 1990-91, the volume of purchase requests sent to IRC has increased by 183 percent. This increase in purchase volume, as well as incomplete or incorrect information, procedural errors, and lack of staff, has caused processing delays.

IRC's initial scrutiny of purchase requisitions accounts for a significant portion of the total computer purchase processing time. Only one person in IRC reviews City departments' and offices' computer purchase requisitions. This same person is the supervisor for IRC and the ISD's Administrative Services Unit. Based on our review of 45 purchase requisitions from 1989 to 1991, IRC took an average of 25 days to approve purchase requisitions and as long as 75 days to approve a requisition.

IRC Does Not Adequately Check Computer Requisitions From City Departments And Offices

Our review disclosed that ISD does not have a systematic process for determining the most cost-effective means to meet the computer requirements of the City departments or offices that request computers or computer software. The form City departments or offices use to substantiate their request (Form 4808I - Request to Order Computer Hardware/Software) elicits only general information, such as the purpose, size, and interface requirements of the requested equipment or software. When filling out Form 4808I, departments or offices are not required to provide information regarding their operating environment, anticipated level of use, data storage requirements, or the user's level of computer knowledge. Without this information, IRC cannot determine the requesting department's or office's computer requirements or identify the most cost-effective system for the requester. Furthermore, IRC's procedures do not require it to inform the requesting department or office in writing regarding what type of system IRC recommends or when IRC is experiencing problems in processing the computer or software request.

The following are specific instances that illustrate the consequences of limited review of City department or office computer requirements. Appendix E lists additional comments of City departments and offices relating to the limited review IRC conducts when evaluating computer needs.

1. Failure to determine all the requirements of the system. In October 1990, the Water Pollution Control Plant (WPCP) submitted to ISD a request for computer equipment and software. IRC did not determine all the requirements of the system that WPCP needed. As a result, when IRC delivered the computer, seven months later, it lacked a printer and software. Without the printer and software, WPCP could

not use the computer. After another four months had passed, IRC delivered to WPCP a different software than what WPCP had originally ordered. Because they were unfamiliar with the software that IRC delivered, WPCP staff had to use their own personal printers and software in order to use the computer that IRC delivered to the WPCP. Furthermore, WPCP staff had to continue manually doing some tasks that the new computer system was intended to automate.

2. Failure to consider the capabilities of the existing system. In November 1990, the Neighborhood Preservation Department (NPD) submitted to IRC a request for a software upgrade, which IRC reviewed and approved. When NPD received the software, its staff discovered that the NPD computer did not have sufficient memory for the new software. In April 1990, NPD also submitted a request for a printer-sharing device. IRC delivered the device in September 1990; however, the device did not work and a different one had to be ordered. As of November 1991, NPD still did not have the printer-sharing device it had requested in April 1990.
3. Failure to give a commitment or an estimate of the delivery date. In October 1990, the City Clerk's Office ordered computer equipment. As of November 1991, the City Clerk had not received the equipment. According to the City Clerk's staff, they have not been able to get IRC to commit to a delivery date for the computer equipment that they requested more than a year ago.
4. Failure to respond timely to department needs. On July 2, 1991, the Office of Economic Development (OED) submitted to IRC a request for a business directory database. According to OED staff, this was a simple order for a specialized product from a sole source that the department could have bought in a few days. Instead, because it was a book in a computer disk format, it was ordered through the ISD computer purchasing process and it was delivered to OED six weeks later on August 13, 1991.
5. Failure to keep track of merchandise received. In August 1991, the Airport Department ordered a printer-sharing device. After the City received the device, IRC lost track of it in its warehouse where it was being stored. The Airport had to wait two weeks until IRC located the device in its warehouse. In January 1988, the City Clerk's Office

ordered an upgrade for its spreadsheet program. While the City Clerk's Office never did receive the requested software upgrade, the Office was charged for the cost of the upgrade.³

In our opinion, IRC's process for determining computer requirements should be documented and consistent. To analyze computer requirements, IRC should develop a form that provides the requisitioning department and IRC staff with the information needed to identify and recommend the most cost-effective system. Such information should include:

- The intended use of the computer equipment and/or software;
- The operating environment of the requester, such as the principal location, susceptibility to damage, and mobility or portability requirements;
- The anticipated level of use, such as the number of users, hours of operation per week, volume of work, permissible downtime, and expected equipment useful lifespan;
- Capability requirements, such as Random Access Memory (RAM), speed, or special functions;
- Compatibility requirements;
- Data storage requirements, such as hard disks, floppy disks, compact disks, or off-site storage;
- Special features, such as non-standard keyboard, special wiring, or modems; and
- Staff training and assistance needs, such as installation and burn-in, equipment operation, or routine maintenance.

³ It should be noted that in a January 27, 1992 memorandum to the City Auditor the Director of ISD explained that there were extenuating circumstances for several of the above examples. Appendix h is a complete text of the ISD Director's memorandum to the City Auditor.

City Departments And Offices Are Not Satisfied With IRC Services

Of the 15 departments or offices that responded to a City Auditor's survey, 14 indicated that they were dissatisfied with the service that IRC provided to them and one had no comment. Appendix E contains the specific comments survey respondents made regarding their satisfaction with IRC services.

In general, survey respondents expressed the following concerning IRC service:

1. Service was too slow and too bureaucratic. Many respondents felt that they could have done better on their own. The slowness of IRC service resulted in lost opportunities to save money. For example, one department reported that it missed limited-time special offers from software manufacturers because IRC did not act fast enough.
2. IRC did not provide feedback regarding the status of requests. Respondents reported that it was a source of continuing frustration to not know what was happening to their requisitions. This lack of feedback and status updates impacted departments' ability to plan and budget effectively.
3. Product prices were too high. Prices at local stores were frequently lower than the prices Purchasing secured. A respondent to our survey reported that they could have bought more and better computers for the same amount of money if they had known that they could have bought items not on the IRC-supported list.
4. Merchandise was lost or delivered late. A respondent to our survey reported that they were charged for a software upgrade that they did not receive. Another respondent reported that the memory chips that they ordered were lost and had to be reordered. Delivery delays also resulted in product warranties being for shorter durations than they would have been if ordered equipment had been delivered faster.

According to ISD, IRC has not been able to service the other departments adequately because of lack of staff. In 1988-89 and prior years, ISD had assigned the equivalent of at least four full-time employees to IRC. Because of budget cut-backs, ISD had to reduce IRC staff to 2.25 employees in 1989-90 and 3.75 employees in 1990-91. The work load, however, has continued to increase. In 1990-91, IRC processed 380 requisitions for computer equipment and software. ISD estimates that for 1991-92 IRC will process more than 425 requisitions. This equates to more than 2,000 data entry lines that IRC has to enter into the FMS. IRC will have to process these purchase requisitions while it attends to its other tasks, which include:

- Assembling, testing, delivering, and installing computer equipment and software, totaling approximately 300 items annually;
- Resolving approximately 3,200 trouble calls relating to the FMS, such as releasing printer-locked batches, checking procedure queues, and logging-off users for weekly check runs and month-end and year-end processing;
- Resolving approximately 530 trouble calls relating to the VS word processing systems, such as removing passwords on documents, recovering documents, monitoring volume of documents, transferring documents from other systems, downloading documents, and converting documents to various PC formats;
- Resolving approximately 2,600 trouble calls relating to PC hardware and software problems, disk recoveries, and incompatibility of equipment or software; and
- Interacting with service technicians for departmental repairs; performing first-line diagnostics to identify problems; repairing equipment or referring the problems to technicians; and coordinating approximately 852 service calls annually.

Given the enormous amount of work and the limited staff at IRC, ISD does not anticipate any significant improvement in the level of service that IRC can provide

to other City departments and offices. In our opinion, ISD can partially alleviate the staffing difficulties at IRC by standardizing computer purchases, as explained below.

*IRC Should Conduct A City-wide
Computer Requirements Analysis*

Many City departments and offices have similar computer needs. For example, departments and offices have similar needs for word processing, spreadsheet applications, and database functions. In our opinion, given this type of similar computer usage, IRC should conduct a City-wide computer requirements analysis with the objective of determining the most cost-effective standard computer configuration for City departments and offices. Such a configuration should allow for interchangeable components to provide reasonable mix-and-match flexibility. Departments and offices could then review their computer needs against the City-wide computer configuration. Should the standard computer configuration, including any allowable component modification, meet the department's or office's computer needs, then the department or office should be able to order the equipment or software directly through Purchasing and receive and install the equipment or software without having to go through ISD's warehouse. This approach would relieve IRC's limited staff resources of handling routine computer-type purchases and greatly reduce IRC's work load.

For non-standard computer requests, IRC should check the requesting department's or office's computer requirements and recommend in writing the most cost-effective computer equipment or software to meet those requirements. IRC should document the requesting department's or office's computer

requirements by developing a requisition form that will facilitate IRC identifying and recommending the most cost-effective system. IRC, in conjunction with Purchasing, should also provide the requesting department or office with an estimate of the delivery date for the equipment or software requested.

By standardizing computer purchases and performing special computer requirements analysis only on non-standard computer-related requisitions, IRC should be able to save overall on staff time for the City's computer purchasing process. Should the recommendations in this report not produce the computer purchasing process time savings anticipated, then ISD should request funding for an additional position that would be dedicated solely to processing City department and office requests for computers or computer software.

**IRC Has Not Analyzed Vendor Performance
And Reliability As A Basis For Deciding
Whether The City Should Continue
To Purchase Computers From Certain Vendors**

According to the San Jose Municipal Code, *“In determining the most advantageous price quotation to the City for an open market purchase . . . the Council or the City Manager may give consideration to the . . . (2) ability of the vendor to perform the transaction; (3) ability of the vendor to complete the transaction within the time specified; (4) quality of the vendor's performance on prior purchase by the City or others; . . . (6) capacity and experience of the vendor.”* However, our review revealed that neither IRC nor Purchasing has developed a vendor performance evaluation system to analyze vendor performance and reliability as a basis for deciding whether the City should continue to purchase computers from certain vendors.

Authoritative literature cites the need for a vendor performance system. The Council of State Governments in its report entitled State and Local Government Purchasing discusses the importance of monitoring vendor performance and recommends that a process for corrective action be implemented to deal with vendors who fail to perform satisfactorily.

Central purchasing should establish a vendor file to collect information for periodic reviews of bidders' responsiveness, performance, and capabilities . . . Performance as a supplier can, to some extent, be measured by central purchasing agents, but reliable information is needed also from using agencies. Matters such as failure to . . . keep promises should be documented by agencies in the form of written reports to central purchasing, or by sending copies to central purchasing of complaints made directly to vendors. Purchasing may need to act at any time on these types of incidents, and the reports, as well as a record of all actions and their outcome, should be entered in the vendor performance file . . . Just as there is a need for standards of ethics and professional conduct for purchasing officials, there is a need for standards for suppliers. The standards should provide for penalties, sanctions, or other disciplinary action, including suspension and debarment, for violations.

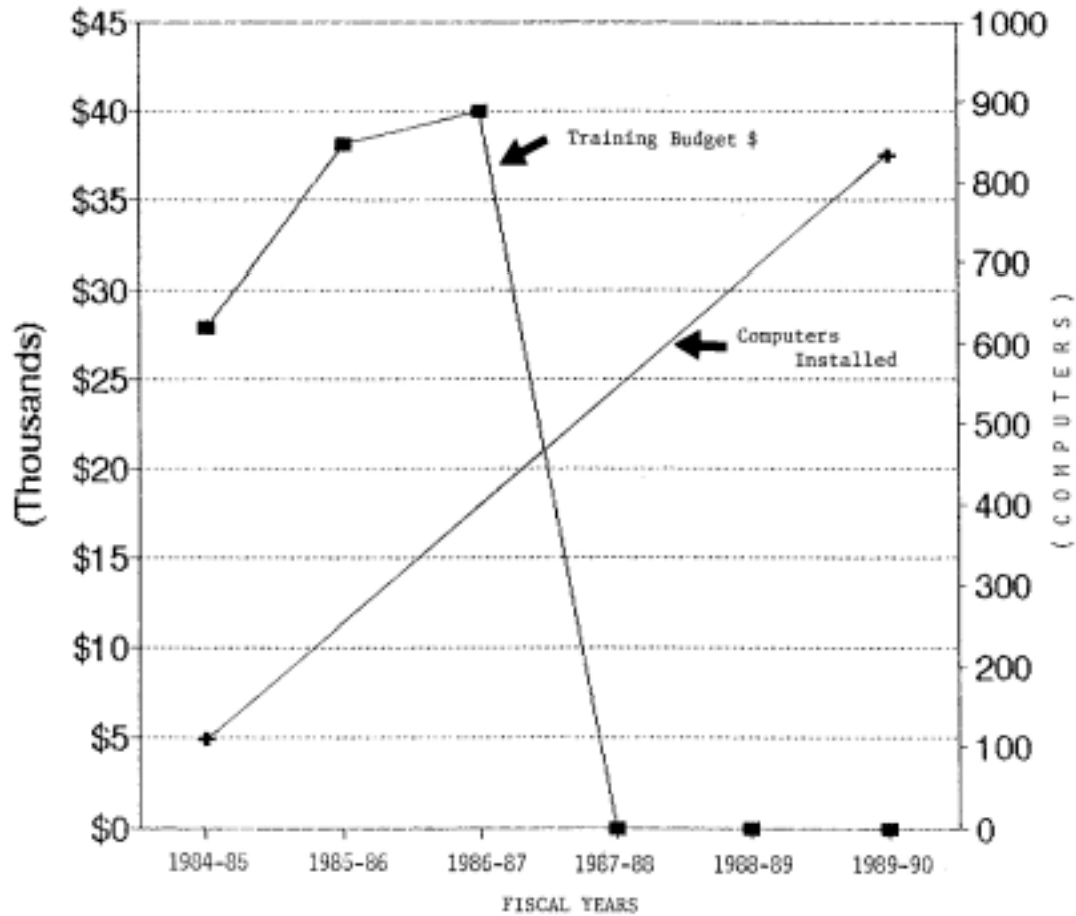
In view of IRC's involvement in the City's purchasing of computer equipment and software, IRC is in the best position to monitor vendor performance on City computer purchases and forward information to Purchasing so that it can take appropriate disciplinary action when vendors fail to perform. Accordingly, IRC needs a formal system to monitor and evaluate vendor performance. We recommend that IRC establish a system to document vendor performance and forward such information to Purchasing to ensure that the City does not do business with unreliable vendors.

**Computer Users In City Departments
And Offices Have Not Received Sufficient
Training In The Use Of Computers**

The City-wide computer training budget in 1984-85, 1985-86, and 1986-87 was \$27,871, \$38,125, and \$40,000 respectively. However, since 1986-87, no monies have been appropriated for City-wide computer training. Ironically, as is shown in Chart II, this decrease in budgeted funds for City-wide computer training has occurred during a time when the number of installed desktop computers throughout San Jose City government has increased significantly.

CHART II

COMPARISON OF THE NUMBER OF INSTALLED DESKTOP COMPUTERS AND FUNDS APPROPRIATED FOR CITY-WIDE COMPUTER TRAINING FROM 1984-85 THROUGH 1989-90



The lack of budgeted funds for City-wide computer training shown in Chart II has resulted in City staff not using their computers as effectively as possible. The following examples illustrate the difficulties City departments have experienced regarding computer training:

1. The WPCP has implemented an electronic mail system to enable the staff to communicate efficiently with one another. Each employee has access to a terminal. However, according to the WPCP training coordinator, lack of computer training has inhibited full utilization of the system. Because some employees have not been trained in its use, they continue to manually prepare their reports and memoranda. While WPCP management has encouraged its staff to enroll in City-sponsored computer classes at San Jose City College (SJCC), only a few staff have enrolled because of limited class availability. Some WPCP staff have paid for computer training out of their own pockets and attended training on their own time.
2. The Department of Public Works (DPW) is in need of training in basic computer operations. The DPW's training coordinator stated that some DPW staff hesitate to use available computers because they lack training. As a result, DPW staff continue to do manually some tasks that could be automated and projects are not completed when planned. When computer classes at SJCC were announced, only 3 of the 25 DPW employees who signed up for classes were able to enroll. So many City employees applied for the SJCC classes that the Human Resources Department had to allot slots to each department.
3. The San Jose Police Department (SJPd) is in need of training in basic computer operations and in the use of SJPd's word processing program. The Human Resources Department allotted only two of the SJCC training slots to the SJPd. As of November 1991, there were 15 training applicants on the SJPd computer training waiting list. Because of this lack of computer training, some SJPd employees still prepare their management reports using typewriters instead of available word processors. Lack of coordination between the SJPd and ISD has also resulted in inefficient training. In anticipation of the delivery of some computers, the SJPd scheduled in-house training for its staff. However, because IRC delivered the computers to the SJPd

six months later than expected, the SJPD had to retrain its staff when the computers finally arrived.

4. The Office of Economic Development (OED) is in need of training on the use of a database program. Even though OED has the necessary computer equipment, its staff is still manually maintaining a database on local economic information because they have not been trained to automate the system.

In our opinion, ISD should request sufficient funding to coordinate and implement, in cooperation with the Human Resources Department, a City-wide computer training program. A potential source of computer training is the State of California's cooperative computer education program. This program, called the State EDP Education Program (SEEP), offers a complete microcomputer curriculum that includes various courses on the use of popular software products. Classes are available at beginning, intermediate, and advanced levels. ISD should evaluate using SEEP as part of the City-wide computer training program.

The City Should Participate In Cooperative Purchasing Arrangements With Other Jurisdictions

The State of California has made available to local governments a cooperative purchasing arrangement for computer software. By participating in this purchasing arrangement, we estimate that the City can save about \$42,000 per year in software costs.

The State of California awards contracts to various software vendors based on a competitive bid process. The vendors awarded these contracts are responsible for providing specific software products. These contracts allow the state and local area agencies throughout California to purchase selected software at a competitive

price and to receive delivery within ten working days from the date the vendor receives an order. These contracts are intended to provide the end user with the best price, delivery, and after-sale technical assistance.

We estimate that the City can save more than 10 percent on its software purchases by purchasing through the state contract. For example, the following are software purchases totaling \$3,898 for which the City could have saved \$422 (10.8%) by going through the state contract.

TABLE I

**COMPARISON BETWEEN CITY OF SAN JOSE ACTUAL PRICES
AND STATE OF CALIFORNIA SOFTWARE CONTRACT PRICES**

<u>Date</u>	<u>PO #</u>	<u>Software</u>	<u>Price Comparison</u>			
			<u>City</u>	<u>State</u>	<u>Differenc</u> <u>e</u>	<u>Percent</u>
11/20/90	28263	WordPerfect 5.1	\$237	\$235	\$2	0.8%
11/30/90	28264	Harvard Graphics 2.1	301	283	18	6.0
11/30/90	28264	Lotus 123 2.2	343	306	37	10.8
11/30/90	28266	Filemaker II	200	180	20	10.0
11/30/90	28292	WordPerfect 5.1	237	235	2	0.8
11/30/90	28292	MS Excel 2.1C for Windows	307	280	27	8.8
11/30/90	28293	Harvard Graphics 2.3	292	283	9	3.1
11/19/90	28405	Lotus 123 3.1	422	368	54	12.8
11/19/90	28405	Windows 3.0	97	81	16	16.5
11/26/90	28495	WordPerfect 5.1	293	235	58	19.8
04/16/91	31222	Windows 3.0	99	81	18	18.2
04/16/91	31224	Lotus 123 2.2	358	306	52	14.5
04/16/91	31224	Lotus 123 3.1	439	368	71	16.2
04/16/91	31226	WordPerfect 5.1	<u>273</u>	<u>235</u>	<u>38</u>	<u>13.9</u>
Totals			<u>\$3,898</u>	<u>\$3,476</u>	<u>\$422</u>	<u>10.8%</u>

In 1990-91, the City purchased approximately \$422,000 worth of PC software. If purchasing through the state contract reduced the City's software costs by only 10 percent, the City could save more than \$42,000 per year. In our opinion, IRC and Purchasing should evaluate purchasing software through the state's master contract for PC software to determine if the contract prices are advantageous to the City.

In addition, Purchasing should develop a City-wide master contract for PC software based on the state model. Further, Purchasing should extend to other Santa Clara County jurisdictions the opportunity to participate in the City's contract. Such an arrangement could produce additional dollar savings for the City and the other jurisdictions that choose to participate.

The City Should Standardize And Bid Its Computer Purchases

The City can improve the economy and efficiency of its computer and computer software purchasing by working with the City's Computer Systems Users Committee, Computer Systems Policy Committee, departments, and offices to standardize and bid City-wide computer purchases.

We found that standardizing computer purchases has proven to be cost-effective for other jurisdictions. For example, the County of Santa Clara has recently completed its bidding of computer purchases and has started to realize significant savings from its new computer purchasing process.

In the past, Santa Clara County bought "name-brand" PCs. Recently, the County changed its PC purchasing policy by accepting clones and standardizing on

computer components rather than the assembled computer. To accomplish this, the County Data Processing Department determined the most common PC configurations that County departments use. The County's Purchasing Department then wrote its bid specifications to identify the components that would go into the PCs that the successful bidder would assemble. The components included the motherboard, Basic Input/Output System (BIOS), monitor, disk drives, disk controller, memory chips, keyboard, and case. Based on these specifications, the County bid the purchase of the PCs it planned to acquire during the next six months (with the option to acquire more during the succeeding six months).

From July through October 1991, the County purchased 121 PCs from the successful bidder. The County paid approximately \$265,000 for the PCs. The County estimated that comparable name-brand PCs would have cost \$491,000. As a result, the County saved almost half the cost by accepting clones and standardizing on the computer components rather than the assembled name-brand PC.

The County's computer purchasing process mirrors the practice of other computer buyers. According to an article in InfoWorld on July 23, 1990,

Many corporations are finding that buying no-name clones from small PC vendors provides them with much more than cost savings. It gives them the opportunity to have custom-configured machines built to their exact specification . . . the standard components used today take much of the risk out of dealing with smaller firms . . . the component makers will stand behind their products. The small PC makers build their machines using standard Intel, Seagate, Keytronic, and Fujitsu parts.

By bidding its annual computer purchases at one time, the City can save as much as \$426,000 annually. We base this estimate on a comparison of a sample of actual prices the City paid with comparable prices under the County of Santa Clara contract. As shown in Table II, the average price difference between the City and the County is \$2,842 per computer. We estimate that the City buys approximately 150 computers annually based on the computers installed by IRC in 1990-91. Based on this volume of purchases, we estimate that the City could save about \$426,000 annually by standardizing on computer components and bidding its computer purchases.

TABLE II

**COMPARISON OF A SAMPLE OF ACTUAL CITY OF SAN JOSE PRICES
WITH COMPARABLE COUNTY OF SANTA CLARA COMPUTER PRICES**

<u>Date</u>	<u>PO #</u>	<u>Item Purchased</u>	<u>City Prices</u>	<u>County Prices</u>	<u>Difference</u>
05/11/91	31668	386-25, 4MB RAM, 120MB HD, 1.44 Drive Video Graphics monitor, additional 1.25 MB Drive, DOS 3.3 Total price including tax	\$4,877	\$2,318	\$2,559
05/14/91	31669	2 each 386-33, 4MB RAM, 120MB Hard Disk Coprocessor 387-33Mhz Additional 1.2MB Drive, DOS 4.01 Total price including tax	\$12,194	\$5,066	\$7,128
04/16/91	31221	386SX-20, 2MB RAM, 1.44 MB Drive, 60MB Hard Drive, VGA Video Graphics Color Monitor MS-DOS, additional disk drive Total price including tax	<u>\$3,494</u>	<u>\$1,814</u>	<u>\$1,680</u>
		TOTALS	\$20,565	\$9,198	\$11,367
		AVERAGE PER COMPUTER	<u>\$5,141</u>	<u>\$2,300</u>	<u>\$2,842</u>

In our opinion, in order to improve the economy and efficiency of the City's computer purchasing process, IRC and Purchasing should work with the City's Computer Systems Users Committee, Computer Systems Policy Committee, departments, and offices to standardize on computer components and bid the City's City-wide computer purchases. The City should use Santa Clara County as a model for this process.

Time And Dollar Savings

By implementing the recommendations in this report, we estimate that City departments and offices could acquire computers and software about 90 days faster and the City could save as much as \$468,000 per year in computer equipment and software costs.

We estimate the City's savings as follows:

- Based on 1990-91 software purchases, the City's PC software purchases total approximately \$422,000 annually. If the City purchased its software through the state software contract, we estimate that the City could save at least 10 percent.

Potential annual savings	\$42,000
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- Based on our sample of City computer purchases, the average difference between the City's prices and Santa Clara County's prices under its computer purchasing contract is \$2,842. If the City bid about 150 computer equipment purchases per year (based on computers installed by IRC in 1990-91) in the same manner as the County, we estimate that the City could save as much as \$426,000 annually.

Potential annual savings	<u>426,000</u>
Estimated total savings	<u>\$468,000</u>

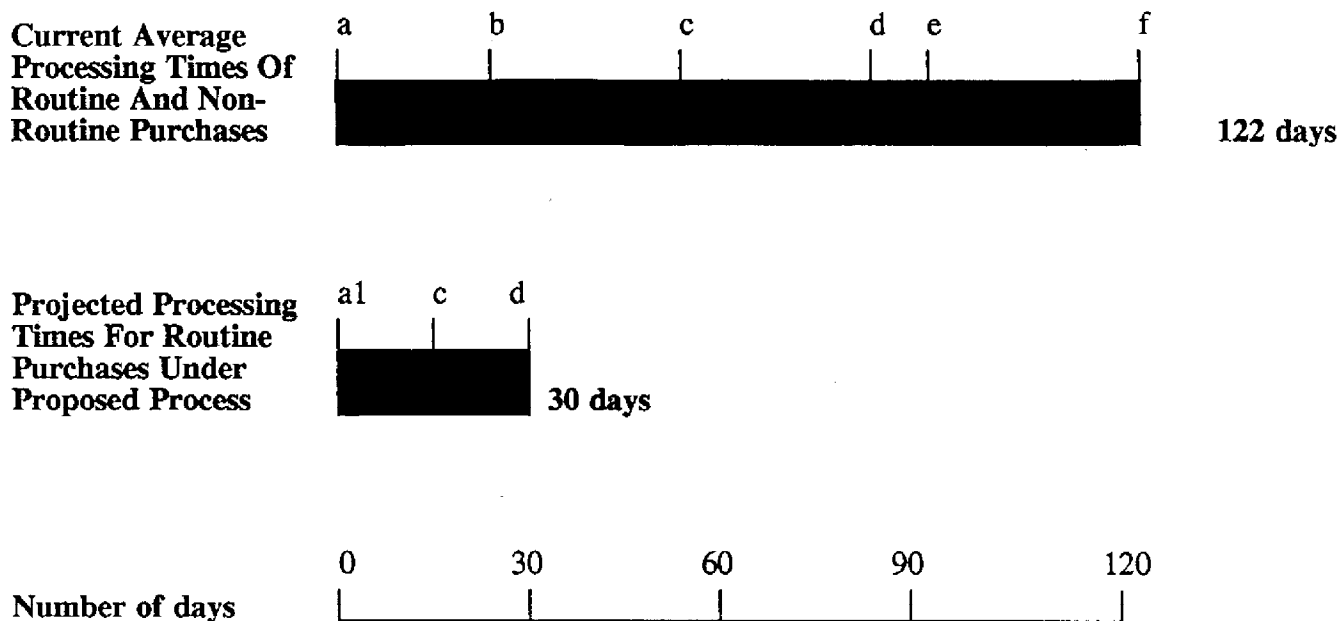
In addition to the dollar savings, the City will also be able to acquire the majority of its microcomputers and software faster by implementing the recommendations in this report. Specifically, the following are our recommended changes in the City's computer purchasing process and the resulting benefits:

1. The City has not standardized on microcomputer components. Consequently, IRC has to review each computer purchase requisition for component compatibility. The City can expedite the ordering process by drawing a list of standard computer components from which the City departments can order directly. IRC would then need to review only those requisitions that specify non-standard components.
2. Currently, Purchasing processes each microcomputer purchase separately, as the City departments or offices submit them. This arrangement not only lengthens the computer purchase processing time, but also increases the work of the Purchasing staff. To reduce Purchasing's work load and make the ordering process more efficient, the City should bid one year's worth of computer purchases at one time. So that departments and offices can retain mix-and-match flexibility, the City's bid should specify standardized components rather than completely assembled computers.
3. At present, IRC is responsible for recording the purchase requisitions into FMS. If the City standardized on computer components, then departments and offices could be authorized to record their computer requisitions directly and only orders for non-standard components would need to go through IRC. This practice would reduce computer acquisition processing time, IRC's work load, and allow departments and offices to track their own requisitions throughout the entire purchasing process.
4. Purchasing currently delivers to IRC the computer equipment and software it receives from vendors. IRC tests the products and then delivers them to the requisitioning departments. If the City implements a standard computer configuration, departments and offices would be able to receive, test, and install the products they purchase themselves.

By making the above changes in the current computer purchasing process, the City will be able to process routine microcomputer equipment and software purchases much faster. We estimate that the City would cut its computer processing time for routine purchases by about 90 days, as illustrated in Chart III.

CHART III

COMPARISON BETWEEN CURRENT AND PROPOSED PROCESSING TIMES FOR ROUTINE COMPUTER-RELATED PURCHASES



According to the Director of ISD, the above projected processing times for routine purchases is very optimistic and he is skeptical about the City being able to achieve such a marked improvement. However, Santa Clara County's contract with its computer vendor calls for a delivery time of not more than 14 days from the receipt of a purchase order. According to the County, the vendor has thus far complied with this provision.

Legend

- a. Department submits request
- a1. Department enters requisition into FMS
- b. IRC approves and enters requisition into FMS
- c. Purchasing processes PR/PO
- d. Vendor delivers items
- e. IRC verifies delivered items
- f. IRC warehouses and delivers

CONCLUSION

Our audit of ISD's computer purchasing process indicated that the IRC within the ISD can improve the economy and efficiency of the City's computer and computer software purchasing by (1) conducting a City-wide computer requirements analysis; (2) working with the City's Computer Systems Users Committee, Computer Systems Policy Committee, departments, and offices to standardize and bid City-wide computer purchases; (3) performing more stringent checks of computer requirements pertaining to each computer requisition and recommending the most cost-effective system to meet those requirements; (4) documenting vendor performance and reliability; (5) providing training to other City departments and offices in the use of computers; and (6) using the State of California's cooperative purchasing contract. By so doing, we estimate that City departments and offices can acquire computers and software about 90 days faster and the City could save as much as \$468,000 per year in computer equipment and software costs.

RECOMMENDATIONS

We recommend that the Information Resource Center of the Information Systems Department:

Recommendation #1:

Conduct a City-wide computer requirements analysis with the objective of determining a standard computer configuration which allows for interchangeable components to provide mix-and-match flexibility. (Priority 2)

Recommendation #2:

Work with the City's Computer Systems Users Committee, Computer Systems Policy Committee, departments, and offices to standardize and bid City-wide computer purchases. (Priority 2)

Recommendation #3:

Develop a form that provides the requisitioning department and IRC staff with the information needed to identify and recommend the most cost-effective computer equipment or software. (Priority 2)

Recommendation #4:

Establish a system to document vendor performance and forward such information to Purchasing to ensure that the City does not do business with unreliable vendors. (Priority 2)

Recommendation #5:

Evaluate using the State of California EDP Education Program to train City employees and request funding in 1992-93 to reinstitute City-wide computer training. (Priority 2)

Recommendation #6:

Purchase the City's software through the state's master contract for personal computer software if the contract prices, terms, and conditions are advantageous to the City. In addition, Purchasing should pursue establishing a City-wide master contract for personal computer software that is available to other Santa Clara County jurisdictions. (Priority 2)

Recommendation #7:

Should the recommendations in this report not produce the computer purchasing process time savings anticipated, then ISD should request funding for an additional position that would be dedicated solely to processing City department and office requests for computers or computer software. (Priority 2)

Recommendations Requiring Budget Action

Of the preceding recommendations, #5 and #7 cannot be implemented absent additional funding. Accordingly, subject to City Council approval of these recommendations, the City Manager should include in the City Manager's Proposed Operating Budget for 1992-93 an amount sufficient to implement Recommendations #5 and #7.